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INTRODUCTION.

This REVIEW is based on reports for April, 1891, from 2,372 regular and voluntary observers. These reports are classified as follows: 171 reports from Signal Service stations; 118 reports from United States Army post surgeons; 1,524 monthly reports from state weather service and voluntary observers; 33 reports from Canadian stations; 182 reports through the Central Pacific Railway Company; 344 marine reports through the co-operation of the Hydrographic Office, Navy Department; marine reports through the "New York Herald Weather Service;" monthly reports from the local weather services of Alabama, Arkansas, Colorado, Illinois, Indiana, Iowa Weather and Crop Service, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New England, New Jersey, New York, North Carolina, North and South Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, and Wisconsin, and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

CHARACTERISTICS OF THE WEATHER FOR APRIL, 1891.

The month was warmer than usual, except along the Pacific coast, and from the middle Pacific coast east-southeast over Florida. At Boston and Newburyport, Mass., in the Red River of the North Valley, and at Wellington, Kans., the mean temperature was the highest, and at Key West, Fla., and Grand Coteau, La., it was the lowest ever reported for April. The highest temperature reported by a regular station of the Signal Service was 102°, at Yuma, Ariz., and by a voluntary observer, 112°, at Volcano Springs, Cal. At stations in the Ohio Valley and Tennessee, the Lake region, the Missouri and Red River of the North valleys, and at Fort Stanton, N. Mex., and Port Angeles, Wash., the maximum temperature was as high or higher than previously reported for April. The lowest temperature reported by a regular station of the Signal Service was 6°, at Saint Vincent, Minn., Fort Washakie, Wyo., and Denver, Colo., and by a voluntary observer, —35°, at Breckenridge, Colo. At Charlotte, N. C., Jacksonville, Key West, and Pensacola, Fla., Mobile, Ala., Palestine, Tex., Fort Smith, Ark., Montrose, Colo., San Francisco, Cal., and Port Angeles, Wash., the minimum temperature was as low or lower than previously reported for April. Over the Florida Peninsula the coldest weather ever known for the season prevailed on the 7th. Killing frost injured fruit and tender vegetation in the Gulf and south Atlantic states, and in Florida as far south as Lee county and Jupiter Inlet, from the 3d to 7th. Killing frost occurred in east Maryland on the 21st and on the New Jersey coast on the 26th.

The precipitation was generally deficient east of the Mississippi River and south of the Lake region, over the Rocky Mountain and plateau regions, and on the Pacific coast, except in west Washington and at San Francisco, Cal.; elsewhere the precipitation was generally in excess of the April average. The greatest excess in precipitation occurred in extreme northwest Washington, where it exceeded 4.00 inches, and the most marked deficiency was noted at Hatteras, N. C., where it was 4.20 inches, and from the lower Ohio valley southward to the middle Gulf coast, where it was more than 2.00 inches. At stations on the Washington coast and at Palestine, Tex., and Lawrence, Kans., the monthly precipitation was the heaviest, and at Wellsborough, Pa., Cleveland, Ohio, Nashville, Tenn., New Orleans and Grand Coteau, La., Fort Stanton, N. Mex., El Paso, Tex., and Keeler, Cal., it was the least ever reported for April. Monthly snowfall to exceed 10.0 inches was reported in the interior of New England, northeast and southeast New York, at mountain stations in south-central Pennsylvania and extreme west Virginia, in the mountains of Colorado, in central and west-central Nevada, along the line of the Central Pacific Railway crossing the summit of the Sierra Nevada Mountains in California, and at Marquette, Mich.

The severest general storm of the month prevailed along the middle Atlantic and New England coasts on the 2d and 3d, causing damage to shipping and seaside property. Destructive local storms were reported as follows: 8th, at Garza, Tex., buildings damaged to the extent of about $500; near Columbia, Mo., a man was killed by lightning. 9th, damage by hail at Springfield, Mo.; buildings struck by lightning at Monticello, Ill., and Milwaukee, Wis. 11th, in York Co., Pa., and Carroll Co., Md. 12th, damage in Cooke and Grayson counties, Tex., by hail, wind, and rain. 15th, tornado passed over Hansford, Tex., killing 2 persons and damaging property to the value of about $25,000; 2 persons were also reported killed at Claude, Tex. 16th, a man killed by lightning near Savannah, Ga., and a man killed by lightning near Washington, N. C. 17th, remarkably heavy rainfall at Gallinas, Tex.; a boy killed by lightning at Trenton, Mo.; a destructive wind and hail storm at Marion, Ind.; 2 barns struck by lightning at Olney, Ill.; 2 buildings struck by lightning at Tarpon Springs, Fla. 18th, a barn struck by lightning near Dyberry, Pa.; a man reported killed by lightning near Salladasburgh, Pa.; damage by lightning in Harford and Baltimore counties, Md.; 5 houses and 2 horses struck by lightning at Orange, Mass.; house and trees struck by lightning at Crossville, Tenn. 19th, stock killed by lightning near Tullahoma, Tenn. 20th, heavy wind and rain storm at Corpus Christi, Tex., 1 boy killed; severe storms in Camp Co. and at Del Rio, Tex.; damage by hail at Lawrenceburgh, Tenn. 21st, 1 man and 2 horses killed by lightning in Knox Co., Tenn. 23d, a man reported killed by lightning at Norwich, Conn. 30th, storm caused damage at Tiffin, Ohio; a man reported killed by lightning near Stockwell, Ind.

The lower Mississippi river remained above the danger-line

at Vicksburg, Miss., and New Orleans, La., throughout the month. It was above the danger-line at Cairo, Ill., until the 19th, and at Memphis, Tenn., until the 22d. On the 3d a break occurred in the levee about 2 miles below Longwood, Miss. On the 5th a break occurred in the newly constructed levee built to protect Gretna, La., from the overflow from the Ames Crevasse, flooding the rear portion of the town. On the 10th water from the Ames Crevasse broke through the rear protection levee on the Concession Plantation, 20 miles below New Orleans. At the close of the month high water prevailed in the upper Rio Grande river and in the streams of New Mexico, and at El Paso, Tex., the water was the highest ever known for the season. The water was also high in the Brazos River, Tex. Navigation opened at Oswego, N. Y., on the 4th, at Toledo, Ohio, on the 5th, at Sandusky, Ohio, on the 7th, at Erie, Pa., on the 11th, and at Buffalo, N. Y., on the 14th. On the 19th the first boat of the season passed through the Straits of Mackinac. The first boat arrived at Sault de Ste. Marie, Mich., on the 27th. Navigation opened at Duluth, Minn., on the 30th. The first boat from Milwaukee, Wis., arrived at Green Bay, Wis., on the 13th. The first boat of the season left Port Huron, Mich., on the 19th, and the first boat of the season arrived at that port on the 20th. Navigation opened at La Crosse, Wis., on the 12th, and at Fort Sully, S. Dak., on the 26th.

Over a great part of the south Atlantic and east Gulf states dry weather impeded farming operations, and in Mississippi and Louisiana crops suffered from drought. At the close of the month forest fires were raging in the mountains near Cumberland, Md. Extensive forest fires prevailed near Blue Knob, Reading, and Ashland, Pa., and Egg Harbor City, May's Landing, and Tom's River, N. J.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for April, 1891, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars. The departure of the mean pressure for April, 1891, obtained from observations taken twice daily at the hours named, from that determined from hourly observations, varied at the stations named below, as follows:

Station.	Departure.	Station.	Departure.
Moorhead, Minn	+.001	Cleveland, Ohio	.000
Chicago, Ill	+.002	Saint Paul, Minn	.000
Duluth, Minn	+.003	Saint Louis, Mo	—.004
Atlanta, Ga	+.004	New Orleans, La	—.005
Pittsburg, Pa	+.006	Denver, Colo	—.006
Eastport, Me	+.007	Omaha, Nebr	—.007
Washington City	+.007	Abilene, Tex	—.007
Key West, Fla	+.007	Memphis, Tenn	—.008
Lynchburgh, Va	+.009	Fort Assinniboine, Mont	—.009
Albany, N. Y	+.010	Santa Fé, N. Mex	—.010
New York City	+.011	Salt Lake City, Utah	—.010
Jacksonville, Fla	+.011	San Francisco, Cal	—.015
Boston, Mass	+.014	El Paso, Tex	—.019
Wilmington, N. C	+.016	Yuma, Ariz	—.025

The mean pressure was highest east of the Mississippi and south of the Ohio rivers, and along the middle and north California coasts, where it was 30.05 or above. The mean pressure was lowest over the Canadian Maritime Provinces, in the British Possessions north of Montana, and over the west part of the southern plateau, where it was below 29.90.

A comparison of the pressure chart for April, 1891, with that of the preceding month shows that there was a general decrease in mean pressure over the central, north, and extreme west parts of the country, while from the southern plateau eastward to the south Atlantic coast there was an increase in mean pressure. The greatest decrease in pressure occurred over the extreme northeast part of the country and in Manitoba, where it was .20 or more, and the most marked increase in pressure was noted on the middle and west Gulf coasts, where it amounted to .05. In the preceding month the mean pressure was highest over the northeastern and north-central parts of the country and on the north Pacific coast, where it was above 30.10, and the mean pressure was lowest over the southern plateau, where it was below 29.95.

The mean pressure was above the normal, except in districts lying north of the 45th parallel, and over the extreme southwest part of the country. The greatest departure above the normal pressure occurred from the Carolinas and Virginia westward to the middle-eastern slope of the Rocky Mountains and thence southeastward to the west Gulf coast, where it was more than .05, and the most marked departure below the normal pressure was noted at stations on the coast of the Gulf of Saint Lawrence and on the north Pacific coast, where it was .05 or more.

The monthly barometric range at each station of the Signal Service is given in the table of Signal Service data.

AREAS OF HIGH PRESSURE.

I.—This high area was central north of North Dakota and Montana from the 1st to the 3d. It then moved directly south to Texas, where it was central on the 5th; it then moved eastward to the coast of Florida, reaching that point on the 7th. The temperature fell from 12° to 22° on the 1st from the Dakotas to Kansas; on the 2d the cold wave extended over the Lake region and the Ohio Valley; continued over these districts on the 3d, and extended to the Gulf States. A further fall in temperature occurred in the Gulf and south Atlantic states on the 4th, and in the last-named states on the 5th. Freezing weather occurred in Tennessee during the nights of the 4-5th; light frosts occurred in the Gulf States on the night of the 4th; and killing frost during the night of the 5th, and as far south as Titusville and Jupiter, on the eastern coast of Florida, during the night of the 6th.

II.—Was central near Lake Superior during the 6th, 7th, and 8th, on the south New England coast on the 9th, and moved thence northeastward to Nova Scotia. The temperature falls were slight and limited in area. Under its influence fair weather prevailed in the Lake region from the 6th until the 9th and continued in New England until the 10th, with temperature differing very slightly from the normal.

III.—This area of high pressure was central in Colorado on the 10th, in Arkansas on the 11th, moved northeastward to Virginia during the 12th, and disappeared off the North Carolina coast on the 14th. It caused but slight falls in temperature, and the southern course pursued by the centre, in connection with the advance of low area No. III, caused very decided rises in temperature in the central portions of the United States during the 12th and 13th and in the Atlantic coast districts during the 14th.

IV.—This high was central in Montana on the 12th and passed along the northern boundary of the United States and reached the Gulf of Saint Lawrence on the 15th. There was a fall of from 10° to 15° in temperature in advance of the centre in the extreme northern districts. A maximum velocity of 32 miles from northeast was reported from Eastport, Me., during the night of the 14th.

V.—A rise of four-tenths of an inch in pressure over the lower lake region on the 15th was the commencement of a high area that passed from that point to the south New England coast and thence down the coast to South Carolina, where it was central on the 18th. There was a slight fall in temperature in the middle and south Atlantic states on the 16th, but as the centre of the high moved to the south there was a general and decided rise in temperature in New England and the middle Atlantic states during the 17th and 18th.